



DIVISION OF
CORPORATION FINANCE

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

December 10, 2010

Patrick M. Wheeler
Chief Financial Officer
ARCA biopharma, Inc.
8001 Arisra Place, Suite 200
Broomfield, CO 80021

Re: ARCA biopharma, Inc.
Form 10-K for Fiscal Year Ended December 31, 2009
Filed March 4, 2010
File No. 000-22873

Dear Mr. Wheeler:

We have reviewed your filing and have the following comment. In our comment, we ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter within ten business days by providing the requested information or by advising us when you will provide the requested response. If you do not believe the comment applies to your facts and circumstances, please tell us why in your response. Please furnish us a letter on EDGAR under the form type label CORRESP that keys your response to our comment.

After reviewing the information provided, we may raise additional comments and/or request that you amend your filing.

Item 8. Financial Statements and Supplementary Data
Consolidated Statement of Cash Flows, page 66

1. Please tell us why your statement of cash flows reflects a \$20.5 million change in accrued expenses and other liabilities, while the balance sheet appears to indicate that the change in these accounts is substantially less. Similarly, please also address the change in your accounts payable.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In responding to our comments, please provide a written statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

You may contact Tabatha Akins, Staff Accountant (202) 551-3658 or Mary Mast, Senior Staff Accountant at (202) 551-3613 if you have any questions regarding the comment. In this regard, do not hesitate to contact me, at (202) 551-3679.

Sincerely,

Jim B. Rosenberg
Senior Assistant Chief Accountant